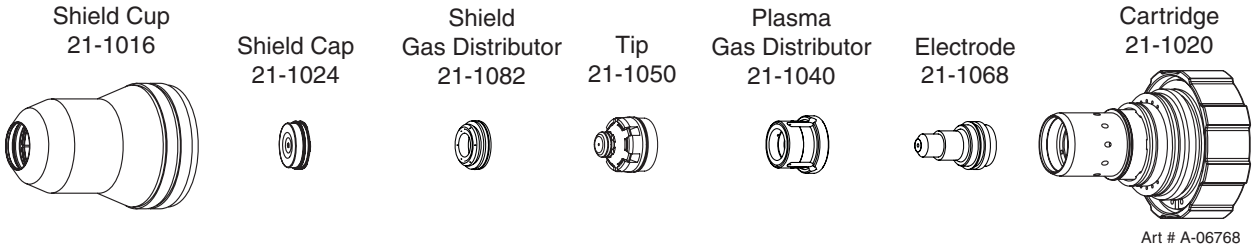
Mild Steel

30A

O_2 Plasma / O_2 Shield



30A Mild Steel (O_2/O_2)													
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (O_2)							
(ga)	(in)	inch	(PSI)	Ball	(PSI)	Ball	(PSI)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
20		0.036	60	22	120	21	120	128	0.050	130	0.120	0.2	0.058
16		0.060	60	22	120	21	120	143	0.050	60	0.120	0.3	0.070
14		0.075	60	22	120	21	120	145	0.070	45	0.120	0.3	0.072
12		0.105	60	22	120	21	120	148	0.110	40	0.150	0.3	0.074
10		0.135	80	22	120	21	120	154	0.130	30	0.150	0.3	0.085
	3/16	0.188	80	22	120	21	120	154	0.120	25	0.150	0.4	0.075

Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (O_2)							
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
1	4.1	22	8.3	21	8.3	130	1.3	3050	3.0	0.2	1.5
2	4.1	22	8.3	21	8.3	145	1.9	1130	3.1	0.3	1.8
3	4.1	22	8.3	21	8.3	150	3.0	910	3.8	0.3	2.0
4	5.5	22	8.3	21	8.3	154	3.2	710	3.8	0.3	2.1
5	5.5	22	8.3	21	8.3	155	3.0	640	3.8	0.4	1.9

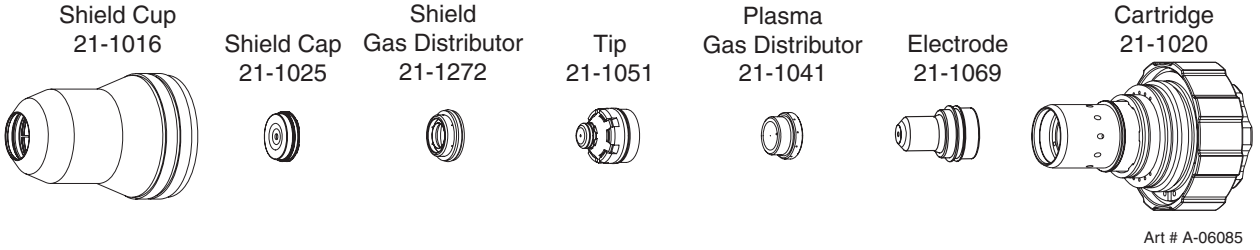
Marking (with 30A Mild Steel Parts)

15A Arc Current	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Marking Quality Degrades as Thickness Decreases.
		Plasma Pressure (N_2)		Shield Pressure N_2)							
Burn-through may occur on thicknesses < 1/16" (0.063") / 1.6 mm		Ball	Press	Ball	Press	Volts	In ±0.005 / mm ±0.1	ipm / mm/min	In ±0.005 / mm ±0.1	(sec)	
	20psi 1.4 bar	20	40 psi 2.8 bar	70	80 psi 5.5 bar	145	0.1 2.5	300 7600	0.1 2.5	0	

Mild Steel

50A

O_2 Plasma / Air Shield



Art # A-06085

50A Mild Steel (O_2/Air)													
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (Air)							
(ga)	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
14		0.075	70	28	120	20	120	130	0.060	320	0.100	0.0	0.040
12		0.105	70	28	120	20	120	130	0.060	270	0.100	0.0	0.052
10		0.135	70	28	120	20	120	126	0.040	160	0.100	0.4	0.044
	3/16	0.188	70	28	120	40	120	130	0.060	100	0.110	0.4	0.054
	1/4	0.250	70	28	120	40	120	132	0.060	90	0.110	0.4	0.062

Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (Air)							
(mm)	(bar)	Ball	(bar)	Ball	(bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
2	4.8	28	8.3	20	8.3	130	1.5	7970	2.5	0.0	1.1
3	4.8	28	8.3	20	8.3	128	1.3	5640	2.5	0.2	1.2
4	4.8	28	8.3	20	8.3	128	1.2	3420	2.7	0.4	1.2
5	4.8	28	8.3	40	8.3	130	1.5	2500	2.8	0.4	1.4
6	4.8	28	8.3	40	8.3	132	1.5	2340	2.8	0.4	1.5

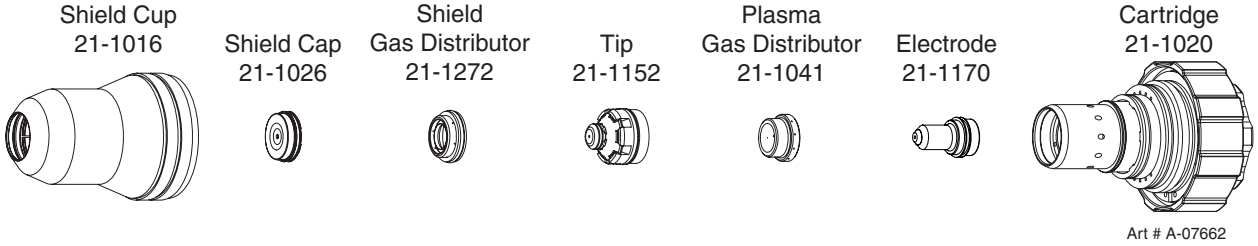
Marking (with 50A Mild Steel Parts)

18A Arc Current	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Marking quality degrades as thickness decreases.
		Plasma Pressure (N_2)		Shield Pressure (N_2)							
Burn-through may happen for thicknesses < 1/16" (0.063") / 1.6 mm		Ball	Press	Ball	Press	Volts	in ±0.005 / mm ±0.1	ipm / mm/min	in ±0.005 / mm ±0.1	sec	
	20 psi 1.4 bar	40	40 psi 2.8 bar	75	80 psi 5.5 bar	160	0.12 3	300 7600	0.12 3	0	

Mild Steel

70A

O_2 Plasma / Air Shield With XTL Torch Valve Assembly*



Art # A-07662

70A Mild Steel XTL (O_2/Air)													
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (Air)							
(ga)	(in)	inch	(PSI)	Ball	(PSI)	Ball	(PSI)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
16		0.060	46	35	120	41	120	138	0.070	300	0.100	0.1	0.073
14		0.075	46	35	120	41	120	138	0.070	300	0.100	0.1	0.072
12		0.105	46	55	120	60	120	142	0.080	270	0.120	0.2	0.078
10		0.135	46	55	120	60	120	142	0.080	180	0.150	0.2	0.071
	3/16	0.188	46	55	120	60	120	148	0.100	130	0.200	0.4	0.077
	1/4	0.250	46	55	120	60	120	148	0.100	100	0.200	0.5	0.083

Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (Air)							
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
1.5	3.2	35	8.3	41	8.3	138	1.8	7620	2.5	0.1	1.9
2	3.2	35	8.3	41	8.3	138	1.8	7530	2.6	0.1	1.9
3	3.2	55	8.3	60	8.3	142	2.0	5860	3.4	0.2	1.9
4	3.2	55	8.3	60	8.3	145	2.3	4030	4.4	0.3	1.9
5	3.2	55	8.3	60	8.3	148	2.5	3190	5.1	0.4	2.0
6	3.2	55	8.3	60	8.3	148	2.5	2710	5.1	0.5	2.1

Marking (with 70A Mild Steel Parts)

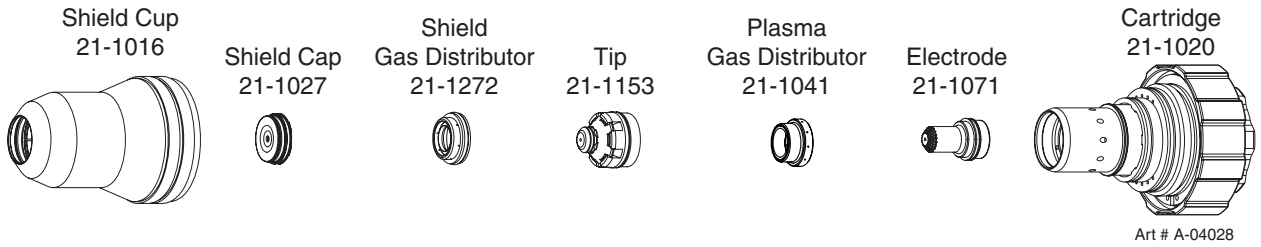
16A Arc Current	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Marking quality degrades as thickness decreases.
		Plasma Pressure (N_2)		Shield Pressure (N_2)							
Burn-through may occur on thicknesses < 1/16" (0.063") / 1.6 mm.		Ball	Press	Ball	Press	Volts	in ±0.005 / mm ±0.1	ipm / mm/min	in ±0.005 / mm ±0.1	sec	
	20 psi 1.4 bar	50	40 psi 2.8 bar	80	80 psi 5.5 bar	155	0.12 3	300 7600	0.12 3	0	

**XTL (eXTreme Life) Torch Valve Assembly increases the life of consumables over the original Torch Valve Assembly. Requires Firmware version 3.2 or higher and XTL consumables.*

Mild Steel

85A

Air Plasma / Air Shield



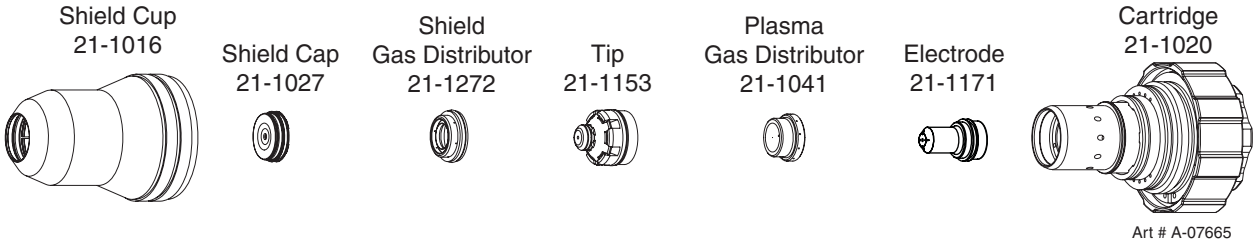
85A Mild Steel Air/Air													
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)							
(ga)	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
10		0.135	74	55	120	80	120	160	0.070	240	0.200	0.0	0.062
	3/16	0.188	74	55	120	80	120	161	0.090	174	0.200	0.1	0.065
	1/4	0.250	74	55	120	80	120	164	0.090	140	0.200	0.2	0.065
	3/8	0.375	74	55	120	80	120	175	0.170	75	0.250	0.3	0.085
	1/2	0.500	74	55	120	80	120	169	0.120	64	0.300	0.3	0.081
	5/8	0.625	74	55	120	80	120	178	0.140	30	0.350	0.8	0.095
	3/4	0.750	74	55	120	80	120	186	0.150	25	NR	NR	0.098

Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)							
(mm)	(bar)	Ball	(bar)	Ball	(bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
4	5.1	55	8.3	80	8.3	160	2.0	5310	5.1	0.0	1.6
5	5.1	55	8.3	80	8.3	162	2.3	4240	5.1	0.1	1.7
6	5.1	55	8.3	80	8.3	163	2.3	3730	5.1	0.2	0.2
8	5.1	55	8.3	80	8.3	170	3.3	2700	5.7	0.3	1.9
10	5.1	55	8.3	80	8.3	174	4.1	1860	6.5	0.3	2.2
12	5.1	55	8.3	80	8.3	170	3.3	1690	7.3	0.3	2.1
15	5.1	55	8.3	80	8.3	176	3.4	1000	8.5	0.7	2.3
20	5.1	55	8.3	80	8.3	188	3.9	600	NR	NR	2.5

Mild Steel

100A

O_2 Plasma / Air Shield With XTL Torch Valve Assembly*



Art # A-07665

100A Mild Steel XTL O_2/Air													
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (O_2)		Shield (Air)							
(ga)	(in)	inch	(PSI)	Ball	(PSI)	Ball	(PSI)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
10		0.135	40	55	120	80	120	138	0.070	280	0.200	0.2	0.065
	3/16	0.188	40	55	120	80	120	140	0.090	190	0.200	0.2	0.070
	1/4	0.250	40	55	120	80	120	141	0.100	150	0.200	0.3	0.078
	3/8	0.375	40	55	120	80	120	143	0.110	95	0.250	0.4	0.085
	1/2	0.500	40	55	120	80	120	147	0.120	64	0.300	0.6	0.097
	5/8	0.625	40	55	120	80	120	148	0.120	50	0.350	0.8	0.100
	3/4	0.750	40	55	120	80	120	157	0.150	25	Edge start Only		0.125

Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (O_2)		Shield (Air)							
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
4	2.8	55	8.3	80	8.3	139	2.0	6120	5.1	0.2	1.7
5	2.8	55	8.3	80	8.3	140	2.3	4670	5.1	0.2	1.8
6	2.8	55	8.3	80	8.3	141	2.5	4030	5.1	0.3	1.9
8	2.8	55	8.3	80	8.3	142	2.7	3080	5.7	0.4	2.1
10	2.8	55	8.3	80	8.3	144	2.8	2300	6.5	0.4	2.2
12	2.8	55	8.3	80	8.3	146	3.0	1800	7.3	0.6	2.4
15	2.8	55	8.3	80	8.3	148	3.1	1370	8.5	0.7	2.5
20	2.8	55	8.3	80	8.3	157	3.8	640	Edge Start Only		3.2

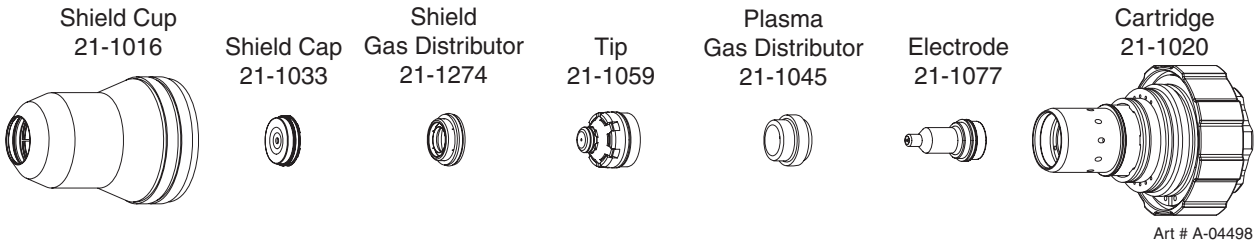
Marking (with 100A Mild Steel Parts)											
15A Arc Current	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Marking quality degrades as thickness decreases
		Plasma Pressure (N_2)		Shield Pressure (N_2)							
Burn-through may occur for thicknesses < 1/16" (0.063") / 1.6 mm.		Ball	Press	Ball	Press	Volts	in ±0.005 / mm ±0.1	ipm / mm/min	in ±0.005 / mm ±0.1	(sec)	
	20 psi 1.4 bar	50	40 psi 2.8 bar	100	80 psi 5.5 bar	190	0.12 3	300 7600	0.12 3	0	

**XTL (eXTreme Life) Torch Valve Assembly increases the life of consumables over the original Torch Valve Assembly. Requires Firmware version 3.2 or higher and XTL consumables.*

Stainless Steel

30A

Air Plasma / Air Shield



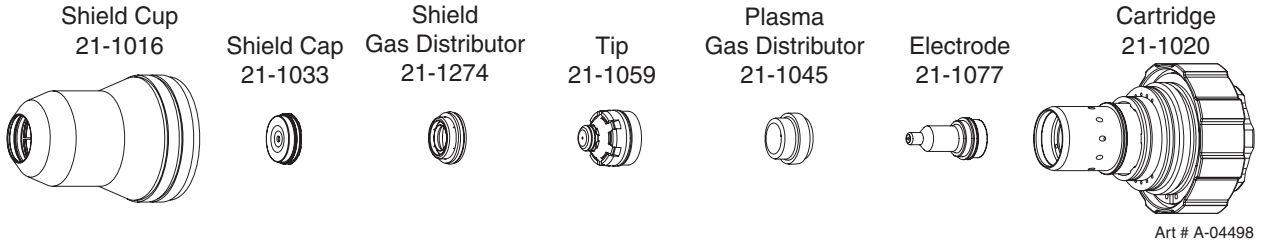
30A Stainless Steel (Air/Air)													
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)							
(ga)	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
26		0.019	60	64	120	20	120	87	0.020	350	0.040	0.0	0.029
24		0.025	60	64	120	20	120	85	0.020	320	0.040	0.0	0.028
22		0.031	60	64	120	20	120	80	0.020	310	0.040	0.0	0.034
20		0.038	60	64	120	20	120	75	0.020	300	0.060	0.1	0.025
18		0.050	60	64	120	20	120	78	0.020	150	0.080	0.2	0.032
16		0.063	60	64	120	20	120	76	0.020	110	0.080	0.2	0.030

Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)							
(mm)	(bar)	Ball	(bar)	Ball	(bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
0.6	4.1	64	8.3	20	8.3	85	0.5	13580	1.0	0.0	0.7
0.8	4.1	64	8.3	20	8.3	80	0.5	11580	1.1	0.0	0.9
1	4.1	64	8.3	20	8.3	75	0.5	9780	1.6	0.1	0.7
1.5	4.1	64	8.3	20	8.3	77	0.5	5970	2.0	0.2	0.8
2	4.1	64	8.3	20	8.3	74	0.5	4050	2.0	0.2	0.7

Stainless Steel

30A

N_2 Plasma / H_2O Shield



Art # A-04498

30A Stainless Steel N_2/H_2O													
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				** Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)							
(ga)	(in)	(in)	(psi)	Ball	(psi)	Ball	(psi)	(volts)	(in) ±0.005	(ipm)	(in)	(sec)	(in)
26		0.019	90	75	120	4	55	91	0.020	600	0.040	0.0	0.047
24		0.025	90	64	120	4	55	97	0.020	440	0.040	0.0	0.045
22		0.031	90	50	120	4	55	95	0.020	420	0.040	0.0	0.045
20		0.038	90	60	120	5	55	105	0.020	300	0.050	0.1	0.044
18		0.050	90	60	120	5	55	78	0.030	250	0.050	0.1	0.035
16		0.063	90	60	120	5	55	85	0.050	205	0.060	0.2	0.044

Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				** Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)							
(mm)	(bar)	Ball	(bar)	Ball	(bar)	(volts)	(mm)	(mm/min)	(mm)	(sec)	(mm)
0.6	6.2	75	8.3	4	3.8	96	0.5	12110	1.0	0.0	1.2
0.8	6.2	64	8.3	4	3.8	96	0.5	10450	1.0	0.0	1.1
1.0	6.2	50	8.3	4	3.8	102	0.5	7470	1.3	0.1	1.1
1.5	6.2	60	8.3	5	3.8	83	1.0	5550	1.4	0.2	1.0
2.0	6.2	60	8.3	5	3.8	93	2.0	3820	1.8	0.3	1.4

Pressure of the water supply line should be regulated by customer-supplied pressure regulator.

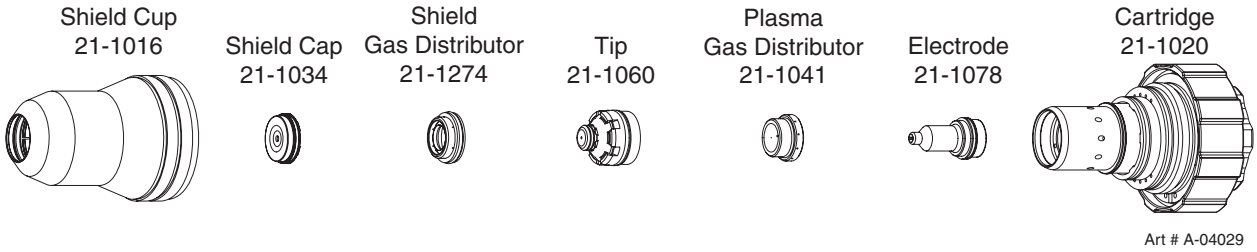
NOTE 1: Ohmic height sensing is not recommended with water shield.
Water on the plate interferes electrically with the ohmic sensing circuit.

NOTE 2: Water source used for H_2O Water Shield must be demineralized.

Stainless Steel

50A

Air Plasma / Air Shield



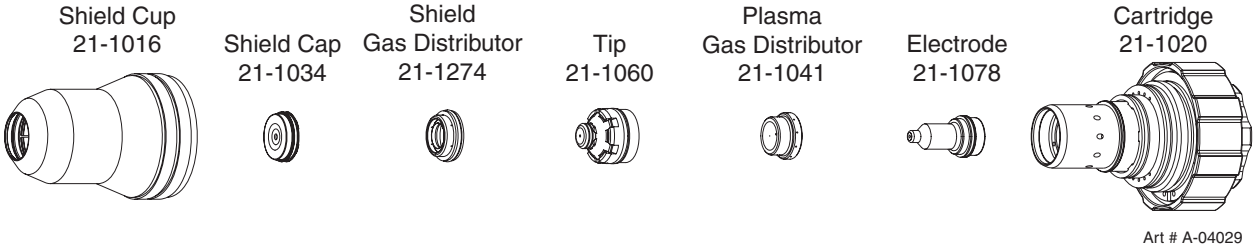
50A Stainless Steel (Air/Air)													
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)							
(ga)	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
14		0.078	100	62	120	75	120	109	0.060	180	0.120	0.0	0.044
12		0.109	100	62	120	75	120	114	0.060	130	0.150	0.0	0.049
10		0.141	100	62	120	75	120	118	0.060	120	0.180	0.1	0.050
	3/16	0.188	100	62	120	75	120	124	0.080	70	0.200	0.3	0.059

Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)							
(mm)	(bar)	Ball	(bar)	Ball	(bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
1.5	6.9	62	8.3	75	8.3	106	1.5	5350	2.6	0.0	1.0
2	6.9	62	8.3	75	8.3	109	1.5	4540	3.1	0.0	1.1
3	6.9	62	8.3	75	8.3	115	1.5	3230	4.0	0.0	1.3
4	6.9	62	8.3	75	8.3	120	1.7	2600	4.8	0.2	1.4
5	6.9	62	8.3	75	8.3	125	2.1	1520	5.2	0.3	1.5

Stainless Steel

50A

N_2 Plasma / H_2O Shield



Art # A-04029

50A Stainless Steel (N_2/H_20)													
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)							
(ga)	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
14		0.078	100	62	120	4	55	117	0.110	170	0.200	0.2	0.043
12		0.109	100	62	120	4	55	119	0.110	150	0.200	0.2	0.047

Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)							
(mm)	(bar) *	Ball	(bar) *	Ball	(bar) *	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
2	6.9	62	8.3	4	3.8	117	2.8	4310	5.1	0.2	1.1
3	6.9	62	8.3	4	3.8	120	2.8	3660	5.1	0.2	1.2

* Pressure of the water supply line should be regulated by customer supplied pressure regulator

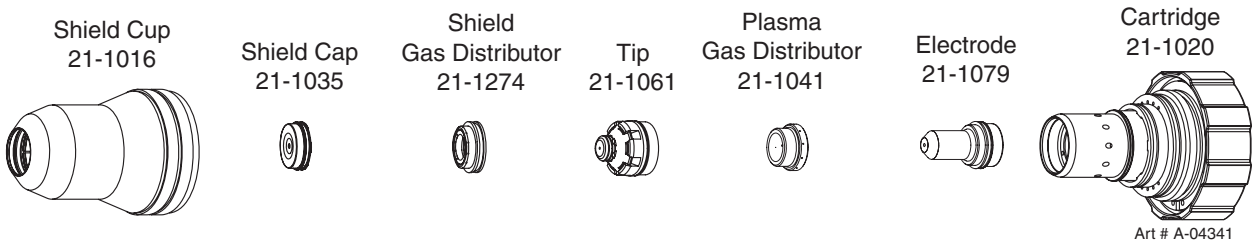
NOTE: Ohmic height sensing is not recommended with water shield.
Water on the plate interferes electrically with the ohmic sensing circuit.

NOTE 2: Water source used for H_2O Water Shield must be demineralized.

Stainless Steel

70A

Air Plasma / Air Shield



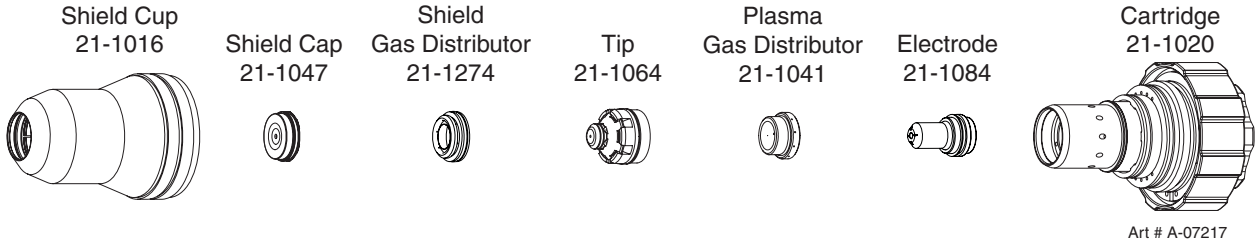
70A Stainless Steel (Air/Air)													
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)							
(ga)	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
10		0.141	84	41	120	94	120	138	0.080	120	0.140	0.3	0.075
	3/16	0.188	84	41	120	87	120	144	0.080	100	0.140	0.4	0.082
	1/4	0.250	84	41	120	72	120	148	0.130	55	0.180	0.5	0.085
	3/8	0.375	84	41	120	72	120	152	0.140	40	0.200	0.6	0.083
	1/2	0.500	84	53	120	60	120	160	0.140	25	0.280	0.8	0.080

Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)							
(mm)	(bar)	Ball	(bar)	Ball	(bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
3	5.8	41	8.3	94	8.3	135	2.0	3300	3.6	0.3	1.8
4	5.8	41	8.3	94	8.3	140	2.0	2870	3.6	0.3	2.0
5	5.8	41	8.3	87	8.3	145	2.2	2380	3.7	0.4	2.1
6	5.8	41	8.3	72	8.3	148	2.3	1440	4.5	0.5	2.1
8	5.8	41	8.3	72	8.3	150	2.4	1200	4.8	0.6	2.1
10	5.8	41	8.3	72	8.3	153	3.6	960	5.4	0.6	2.1
12	5.8	53	8.3	60	8.3	158	3.6	720	6.7	0.8	2.1

Stainless Steel

70A

N_2 Plasma / H_2O Shield



70A Stainless Steel (N_2/H_20)													
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)							
(ga)	(in)	inch	(PSI)	Ball	(PSI)	Ball	(PSI) *	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
10		0.141	45	55	90	5	55	146	0.100	120	0.250	0.3	0.075
	3/16	0.188	45	55	90	5	55	150	0.100	90	0.250	0.4	0.086
	1/4	0.250	45	55	90	5	55	159	0.150	50	0.250	0.5	0.095
	3/8	0.375	45	55	90	5	55	168	0.150	35	0.250	0.7	0.103

Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)							
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar) *	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
3	3.1	55	6.2	5	3.8	142	2.5	3040	6.3	0.3	1.8
4	3.1	55	6.2	5	3.8	143	2.5	2780	6.3	0.3	2.0
5	3.1	55	6.2	5	3.8	151	2.5	2140	6.3	0.4	2.2
6	3.1	55	6.2	5	3.8	157	3.8	1495	6.3	0.5	2.3
8	3.1	55	6.2	5	3.8	164	3.8	1070	6.3	0.6	2.5
10	3.1	55	6.2	5	3.8	170	3.8	980	6.3	0.7	2.6

* Pressure of the water supply line should be regulated by customer supplied pressure regulator

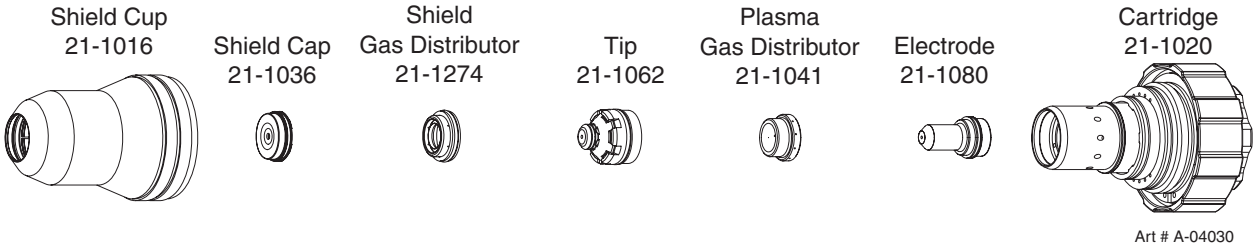
NOTE 1: Ohmic height sensing is not recommended with water shield.
Water on the plate interferes electrically with the ohmic sensing circuit.

NOTE 2: Water source used for H_2O Water Shield must be demineralized.

Stainless Steel

100A

H35 Plasma / N_2 Shield



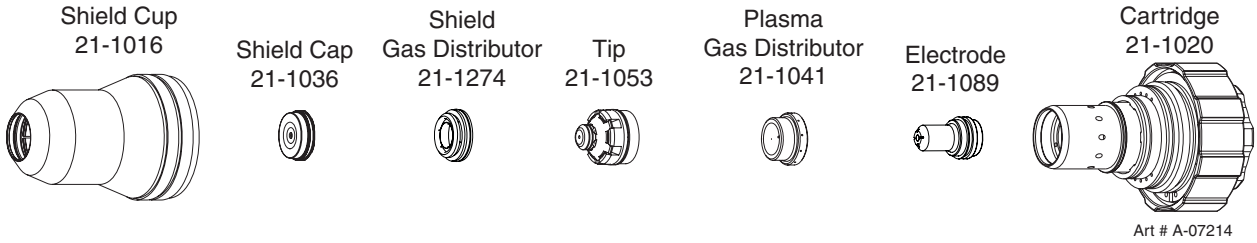
100A Stainless Steel ($H35/N_2$)													
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (H35)		Shield (N_2)							
(ga)	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
	1/4	0.250	80	50	120	97	120	148	0.145	72	0.250	0.3	0.093
	3/8	0.375	80	55	120	97	120	152	0.130	55	0.300	0.3	0.090
	1/2	0.500	80	55	120	97	120	155	0.130	42	0.350	0.5	0.095
	5/8	0.625	80	62	120	97	120	157	0.130	25	0.350	0.6	0.100

Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)							
(mm)	(bar)	Ball	(bar)	Ball	(bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
6	5.5	50	8.3	97	8.3	148	3.7	1880	6.2	0.3	2.0
8	5.5	55	8.3	97	8.3	150	3.5	1600	7.0	0.3	2.0
10	5.5	55	8.3	97	8.3	152	3.3	1350	7.8	0.3	1.9
12	5.5	62	8.3	97	8.3	154	3.3	1140	8.6	0.5	1.9
15	5.5	62	8.3	97	8.3	156	3.3	750	8.9	0.7	1.9

Stainless Steel

100A

N_2 Plasma / H_20 Shield



100A Stainless Steel (N_2/H_2O)												
Material Thickness		Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)							
(in)	inch	(PSI)	Ball	(PSI)	Ball	(PSI) *	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
3/16	0.188	45	60	90	7	55	148	0.100	140	0.300	0.1	0.091
1/4	0.250	45	60	90	7	55	158	0.100	95	0.300	0.1	0.091
3/8	0.375	45	60	90	7	55	168	0.150	65	0.350	0.2	0.100
1/2	0.500	45	60	90	7	55	168	0.150	50	0.350	0.4	0.102

Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)							
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar) *	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
5	3.1	60	6.2	7	3.8	149	2.5	3390	7.6	0.1	2.3
6	3.1	60	6.2	7	3.8	156	2.5	2665	7.6	0.1	2.3
8	3.1	60	6.2	7	3.8	163	3.8	2015	8.9	0.2	2.5
10	3.1	60	6.2	7	3.8	168	3.8	1595	8.9	0.3	2.6
12	3.1	60	6.2	7	3.8	168	3.8	1355	8.9	0.4	2.6

* Pressure of the water supply line should be regulated by customer supplied pressure regulator

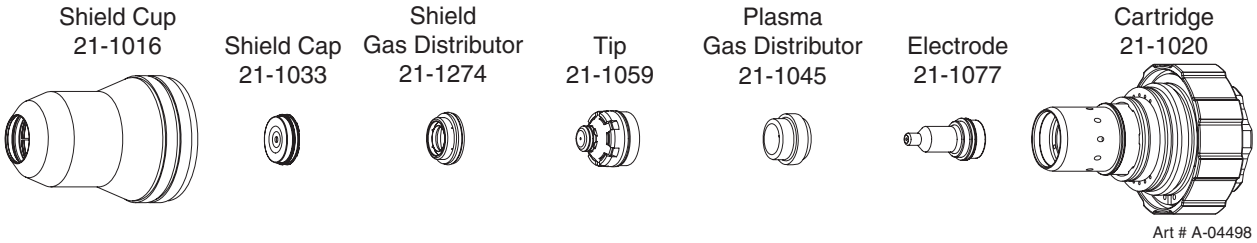
NOTE 1: Ohmic height sensing is not recommended with water shield.
Water on the plate interferes electrically with the ohmic sensing circuit.

NOTE 2: Water source used for H_2O Water Shield must be demineralized.

Aluminum

30A

Air Plasma / Air Shield



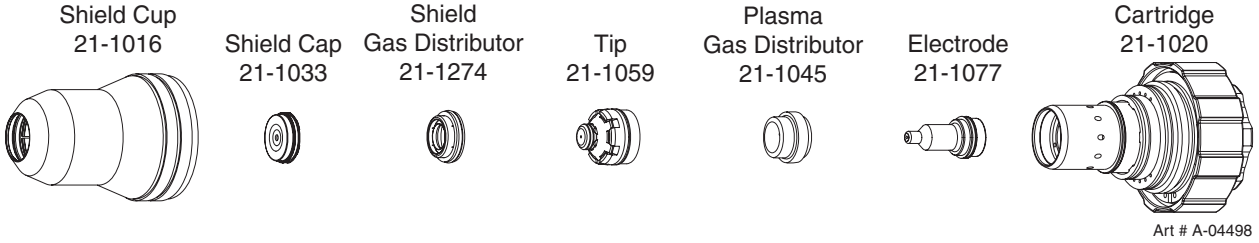
30A Aluminum (Air/Air)													
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)							
(ga)	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
25		0.025	60	60	120	15	120	86	0.020	500	0.040	0.0	0.029
21		0.037	60	60	120	15	120	86	0.020	240	0.060	0.1	0.046
18		0.052	60	60	120	15	120	84	0.020	230	0.100	0.2	0.034
16		0.064	60	60	120	15	120	80	0.020	220	0.100	0.2	0.036

Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)							
(mm)	(bar)	Ball	(bar)	Ball	(bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
1	4.1	60	8.3	15	8.3	86	0.5	6060	1.7	0.1	0.9
2	4.1	60	8.3	15	8.3	75	0.5	5280	2.5	0.2	0.9

Aluminum

30A

N_2 Plasma / H_2O Shield



30A Aluminum (N_2/H_2O)													
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)							
(ga)	(in)	inch	psi	Ball	psi	Ball	psi*	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
25		0.025	96	55	120	4	55	103	0.030	230	0.080	0.0	0.034
21		0.037	96	55	120	4	55	103	0.030	220	0.080	0.1	0.045
18		0.052	96	55	120	4	55	103	0.030	150	0.080	0.2	0.031
16		**0.064**	**96**	**55**	**120**	**4**	**55**	**103**	**0.030**	**110**	**0.080**	**0.2**	**0.036**

Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)							
(mm)	bar	Ball	bar	Ball	bar*	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
1	6.6	55	8.3	4	3.8	103	0.8	5310	2.0	0.1	1.1
2	**6.6**	**55**	**8.3**	**4**	**3.8**	**103**	**0.8**	**1550**	**2.0**	**0.2**	**1.0**

Bold type indicates maximum piercing parameters.

* Pressure of the water supply line should be regulated by customer supplied pressure regulator.

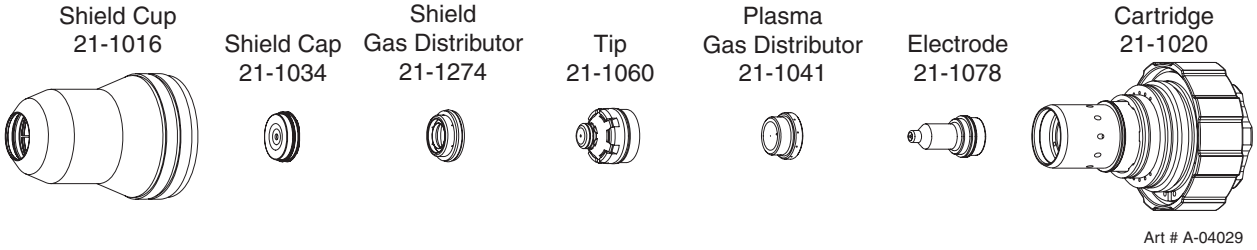
NOTE 1: Ohmic height sensing is not recommended with water shield.
Water on the plate interferes electrically with the ohmic sensing circuit.

NOTE 2: Water source used for H_2O Water Shield must be demineralized.

Aluminum

50A

Air Plasma / Air Shield



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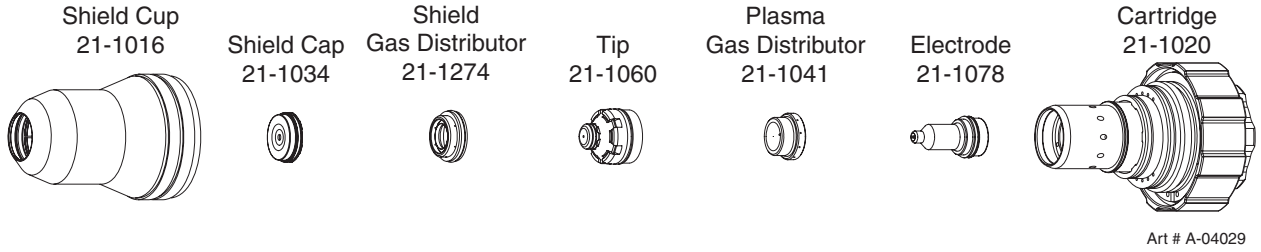
50A Aluminum (Air/Air)													
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)							
(ga)	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
16		0.064	100	60	120	75	120	124	0.100	140	0.200	0.0	0.06
12		0.097	100	60	120	75	120	125	0.105	90	0.200	0.0	0.067
11		0.120	100	60	120	75	120	129	0.110	60	0.200	0.0	0.068
	3/16	0.188	100	60	120	75	120	133	0.120	40	0.200	0.2	0.074

Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)							
(mm)	(bar)	Ball	(bar)	Ball	(bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
2	6.9	60	8.3	75	8.3	124	2.6	2990	5.1	0.0	1.6
3	6.9	60	8.3	75	8.3	129	2.8	1520	5.1	0.0	1.7
4	6.9	60	8.3	75	8.3	131	2.9	1240	5.1	0.1	1.8
5	6.9	60	8.3	75	8.3	134	3.1	950	5.1	0.2	1.9

Aluminum

50A

N_2 Plasma / H_2O Shield



Art # A-04029

50A Aluminum (N_2/H_2O)													
Material Thickness			Pre Flow (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)							
(ga)	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
16		0.064	100	60	120	4	55	120	0.11	140	0.200	0.2	0.045
12		0.097	100	60	120	4	55	120	0.11	90	0.200	0.2	0.046
11		0.120	100	60	120	4	55	123	0.11	60	0.200	0.2	0.050
	3/16	0.188	100	60	120	4	55	125	0.12	40	0.200	0.2	0.051

Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)							
(mm)	(bar) *	Ball	(bar) *	Ball	(bar) *	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
2	6.9	60	8.3	4	3.8	120	2.8	2990	5.1	0.2	1.2
3	6.9	60	8.3	4	3.8	123	2.8	1520	5.1	0.2	1.3
4	6.9	60	8.3	4	3.8	124	2.9	1240	5.1	0.2	1.3
5	6.9	60	8.3	4	3.8	125	3.1	950	5.1	0.2	1.3

* Pressure of the water supply line should be regulated by customer supplied pressure regulator.

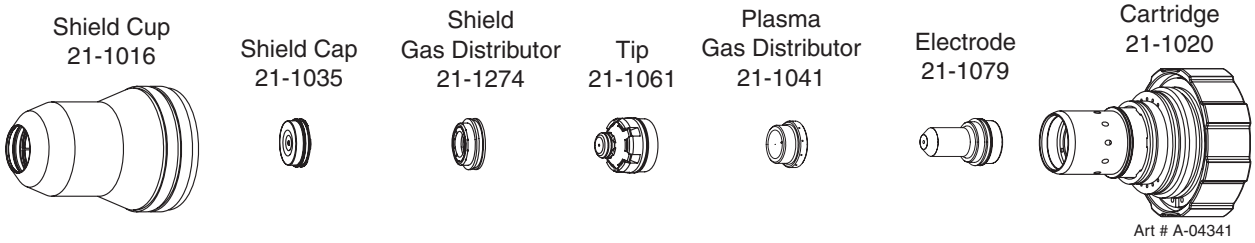
NOTE 1: Ohmic height sensing is not recommended with water shield.
Water on the plate interferes electrically with the ohmic sensing circuit.

NOTE 2: Water source used for H_2O Water Shield must be demineralized.

Aluminum

70A

Air Plasma / Air Shield



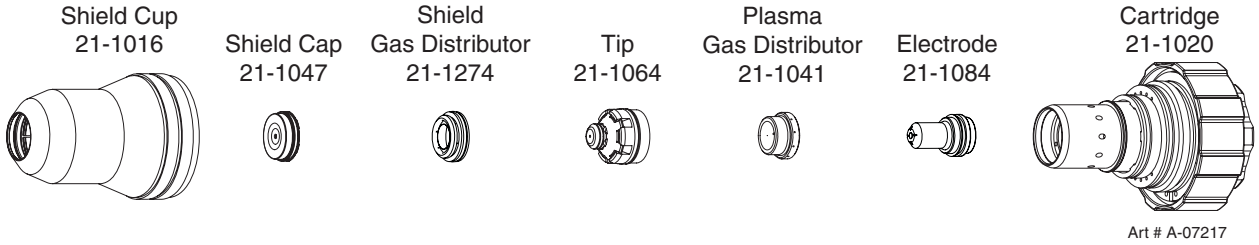
70A Aluminum (Air/Air)													
Material Thickness			Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (Air)		Shield (Air)							
(ga)	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
14		0.079	84	42	120	70	120	153	0.060	300	0.140	0.0	0.058
12		0.097	84	42	120	70	120	160	0.080	200	0.140	0.1	0.062
	3/16	0.188	84	42	120	70	120	162	0.120	100	0.140	0.1	0.072
	1/4	0.250	84	42	120	70	120	166	0.140	70	0.180	0.2	0.073
	3/8	0.375	84	42	120	70	120	168	0.140	60	0.180	0.3	0.078

Material Thickness	Pre Flow Pressure (Air)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (Air)		Shield (Air)							
(mm)	(bar)	Ball	(bar)	Ball	(bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
2	5.8	42	8.3	70	8.3	153	1.5	7620	3.6	0.0	1.5
3	5.8	42	8.3	70	8.3	160	2.3	4490	3.6	0.1	1.6
4	5.8	42	8.3	70	8.3	161	2.7	3390	3.6	0.1	1.7
5	5.8	42	8.3	70	8.3	163	3.1	2430	3.7	0.1	1.8
6	5.8	42	8.3	70	8.3	165	3.4	1950	4.4	0.2	1.9
8	5.8	42	8.3	70	8.3	167	3.6	1650	4.6	0.3	2.0
10	5.8	42	8.3	70	8.3	168	3.6	1490	4.6	0.3	2.0

Aluminum

70A

N_2 Plasma / H_2O Shield



70A Aluminum (N_2/H_2O)													
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (N_2)		Shield (H_2O)							
(ga)	(in)	inch	(PSI)	Ball	(PSI)	Ball	(PSI) *	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
16		0.064	45	55	90	5	55	155	0.100	300	0.250	0.0	0.057
14		0.079	45	55	90	5	55	148	0.100	240	0.250	0.0	0.068
12		0.097	45	55	90	5	55	150	0.150	200	0.250	0.1	0.095
	3/16	0.188	45	55	90	5	55	150	0.150	120	0.250	0.3	0.095
	1/4	0.250	45	55	90	5	55	158	0.150	70	0.250	0.3	0.097
	3/8	0.375	45	55	90	5	55	162	0.150	35	0.250	0.5	0.100

Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)							
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar) *	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
2	3.1	55	6.2	5	3.8	148	2.5	6100	6.3	0.0	1.7
3	3.1	55	6.2	5	3.8	150	3.8	4610	6.3	0.2	2.4
4	3.1	55	6.2	5	3.8	150	3.8	3730	6.3	0.3	2.4
5	3.1	55	6.2	5	3.8	151	3.8	2870	6.3	0.3	2.4
6	3.1	55	6.2	5	3.8	156	3.8	2060	6.3	0.3	2.5
8	3.1	55	6.2	5	3.8	160	3.8	1315	6.3	0.4	2.6
10	3.1	55	6.2	5	3.8	163	3.8	880	6.3	0.5	2.7

* Pressure of the water supply line should be regulated by customer supplied pressure regulator

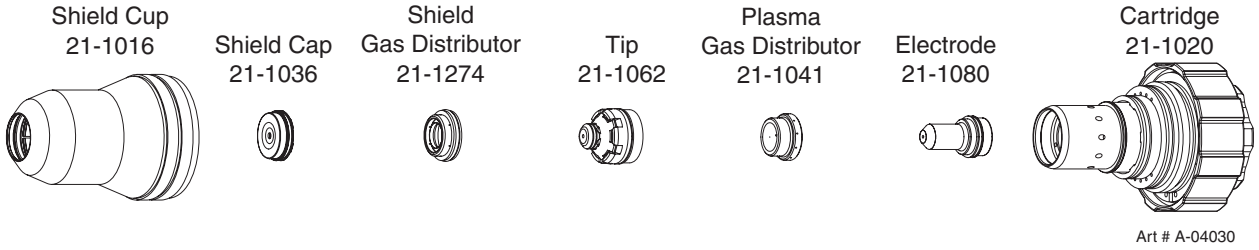
NOTE 1: Ohmic height sensing is not recommended with water shield.
Water on the plate interferes electrically with the ohmic sensing circuit.

NOTE 2: Water source used for H_2O Water Shield must be demineralized.

Aluminum

100A

H35 Plasma / N_2 Shield



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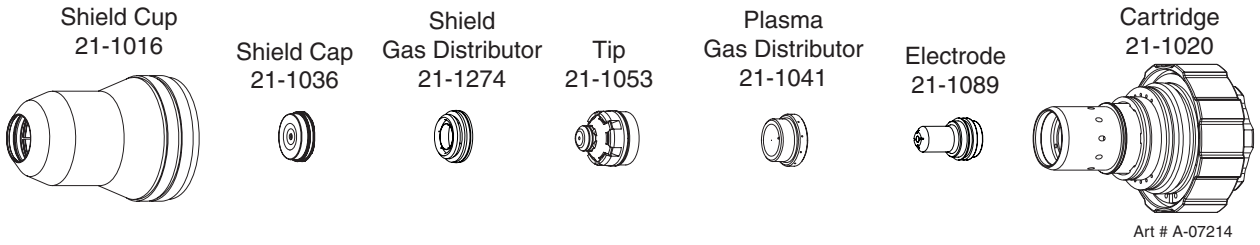
100A Aluminum ($H35/N_2$)													
Material Thickness			Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
				Plasma (H35)		Shield (N_2)							
(ga)	(in)	inch	(psi)	Ball	(psi)	Ball	(psi)	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
	3/8	0.375	80	67	120	62	120	152	0.154	60	0.350	0.2	0.105
	1/2	0.500	80	67	120	62	120	158	0.150	50	0.350	0.2	0.110
	5/8	0.625	80	67	120	62	120	160	0.150	35	0.350	0.5	0.110

Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (H35)		Shield (N_2)							
(mm)	(bar)	Ball	(bar)	Ball	(bar)	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
10	5.5	67	8.3	62	8.3	153	3.9	1490	8.9	0.2	2.7
12	5.5	67	8.3	62	8.3	157	3.8	1330	8.9	0.2	2.8
15	5.5	67	8.3	62	8.3	159	3.8	990	8.9	0.5	2.8

Aluminum

100A

N_2 Plasma / H_2O Shield



100A Aluminum (N_2/H_2O)												
Material Thickness		Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
			Plasma (N_2)		Shield (H_2O)							
(in)	inch	(PSI)	Ball	(PSI)	Ball	(PSI) *	Volts	(in) ±0.005	(ipm)	(in)	(sec)	(in)
3/16	0.188	45	60	90	7	55	158	0.150	130	0.300	0.1	0.095
1/4	0.250	45	60	90	7	55	160	0.150	90	0.300	0.1	0.100
3/8	0.375	45	60	90	7	55	161	0.150	70	0.300	0.2	0.100
1/2	0.500	45	60	90	7	55	171	0.150	40	0.300	0.4	0.100
5/8	0.625	45	60	90	7	55	175	0.180	35	0.350	0.5	0.105

Material Thickness	Pre Flow Pressure (N_2)	Cut Flow Rates / Pressures				Arc Voltage	Torch Working Height	Travel Speed	Initial Piercing Height	Pierce Delay	Kerf Width @ Rec. Speed
		Plasma (N_2)		Shield (H_2O)							
(mm)	(Bar)	Ball	(Bar)	Ball	(Bar) *	Volts	(mm) ±0.1	(mm/min)	(mm)	(sec)	(mm)
5	3.1	60	6.2	7	3.8	158	3.8	3150	7.6	0.1	2.4
6	3.1	60	6.2	7	3.8	160	3.8	2510	7.6	0.1	2.5
8	3.1	60	6.2	7	3.8	161	3.8	2025	7.6	0.2	2.5
10	3.1	60	6.2	7	3.8	162	3.8	1665	7.6	0.3	2.5
12	3.1	60	6.2	7	3.8	169	3.8	1190	7.6	0.4	2.5
15	3.1	60	6.2	7	3.8	174	4.6	925	8.9	0.5	2.7

* Pressure of the water supply line should be regulated by customer supplied pressure regulator

NOTE 1: Ohmic height sensing is not recommended with water shield.
Water on the plate interferes electrically with the ohmic sensing circuit.

NOTE 2: Water source used for H_2O Water Shield must be demineralized.

TORCH PARTS LIST

Returns

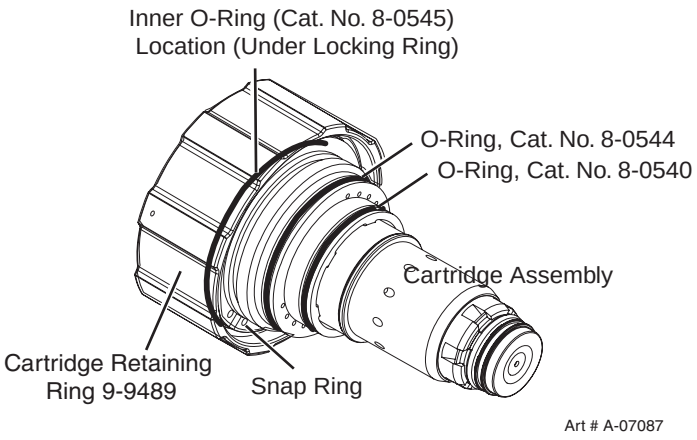
If a product must be returned for service, contact your authorized distributor. Materials returned without proper authorization will not be accepted.

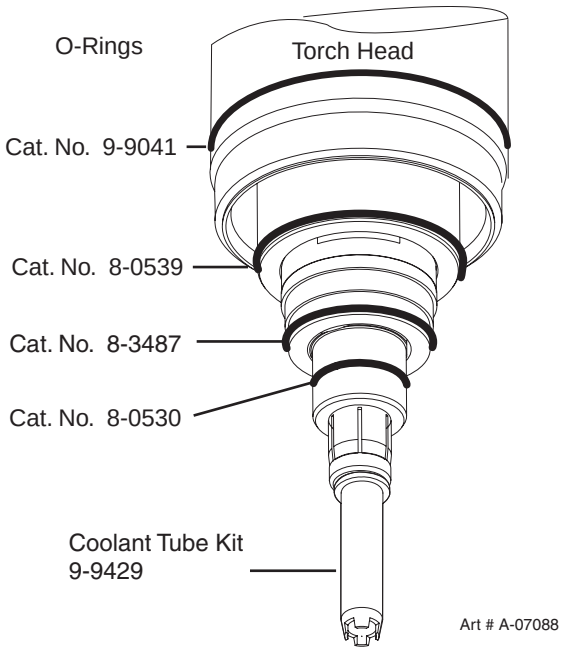
Ordering Information

Order replacement parts by catalog number and complete description of the part or assembly. Also include the model and serial number of the machine or torch.

Refer to parts diagrams within the body of the manual for consumable parts and replacement O-Ring catalog numbers.

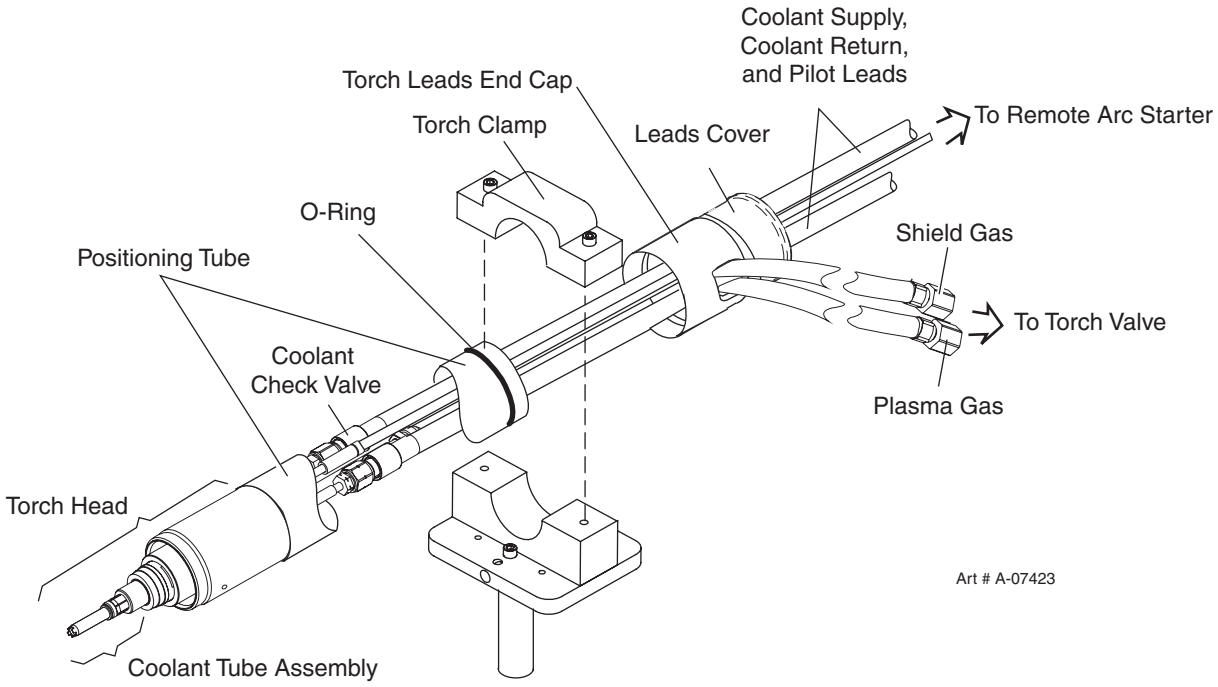
Description	Catalog Number
O-Ring Lubricant (Christo-Lube MCG-129)	9-4893
Torch Head and Cartridge O-Ring Kit	9-9488
Shield Cup (all applications except 200A & 300A)	21-1016
Torch Cartridge (includes Cartridge Tool) (all applications except 200A & 300A)	21-1020
Cartridge Tool	9-9431
Cartridge Retaining Ring	9-9489



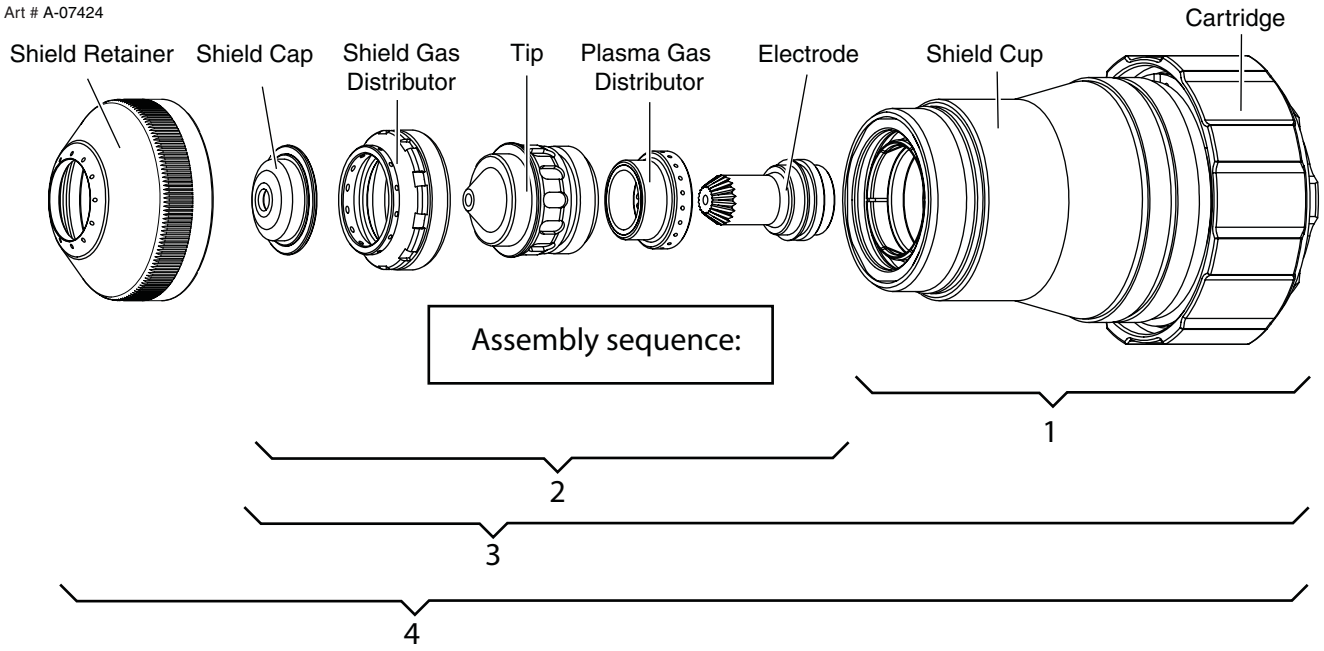


Torch Replacement Parts

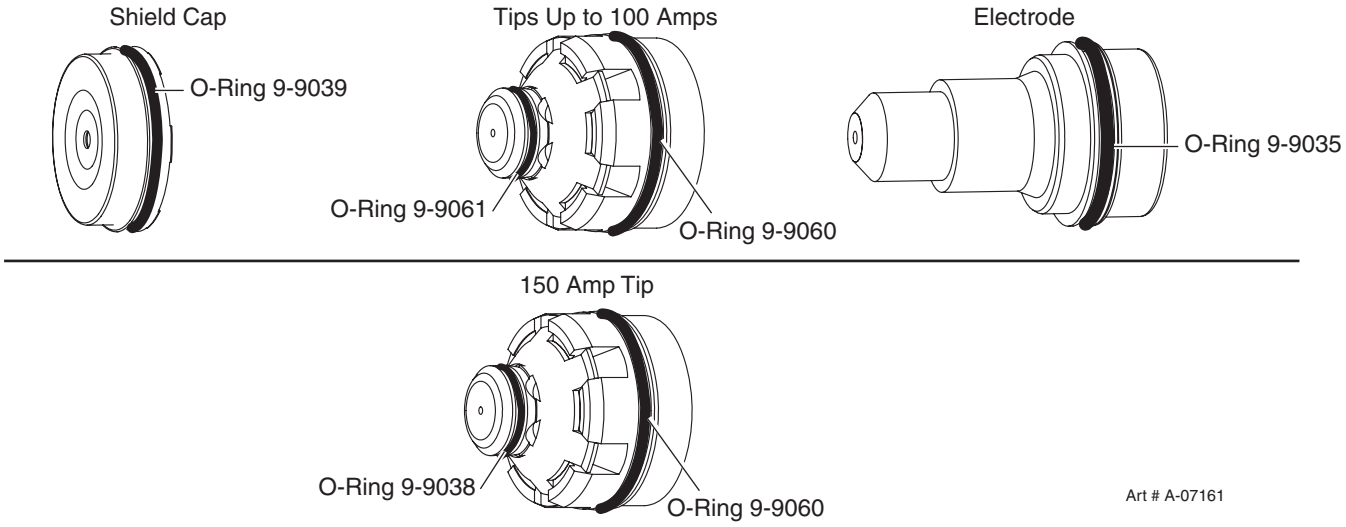
Description	Catalog Number
Torch Head Assembly	21-1002
Coolant Check Valve Assembly	9-4846
Torch Clamp Assembly	9-9336
Torch Positioning Tube (includes hardware kit 9-4847)	9-4700
Positioning Tube Hardware Kit (O-Ring & screws)	9-4847
Plasma & Shield Leads Assembly (to Torch Valve)	4-3026
Ohmic Clip (not shown)	9-9414



Assembly Sequence, 300 Amp Consumables



Consumables O-Rings (up to 150 Amps)



Consumables O-Rings (300 Amps)